Application No. 10/750,301 Docket No.: 21058/0206690-US0 Amendment dated October 4, 2007

Reply to Office Action of June 5, 2007

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A gel matrix comprising a hydrated gel comprising pores having a

size to sieve molecules of a desired size range by electrophoresis or magnetophoresis and one or

more SERS-enhancing nanoparticles stationary within the gel.

2. (Original) The gel matrix of claim 1 comprising a plurality of the nanoparticles to

provide a plurality of unique optical signatures

3. (Original) The gel matrix of claim 2, wherein the SERS-enhancing nanoparticles

comprise one or more Raman-active tags independently selected from the group consisting of

nucleic acids, nucleotides, nucleotide analogs, base analogs, fluorescent dyes, peptides, amino acids,

modified amino acids, organic moieties, quantum dots, carbon nanotubes, fullerenes, metal

nanoparticles, electron dense particles and crystalline particles.

4. (Original) The gel matrix of claim 1, wherein at least one of the nanoparticles has a net

charge.

5. (Original) The gel matrix of claim 1, wherein the nanoparticles each provide a unique

SERS-signal that is correlated with binding specificity of the probe of the nanoparticle.

6. (Original) The gel matrix of claim 1, wherein the Raman-active tag comprises adenine or

an analog thereof.

7. (Original) The gel matrix of claim 1, wherein the nanoparticles are composite

organicinorganic nanoparticle (COINS) comprising a core and a surface, wherein the core

comprises a metallic colloid comprising a first metal and a Raman-active organic\compound..

8. (Original) The gel matrix of claim 7, wherein the COINS further comprise a second

metal different from the first metal forming a layer overlying the surface of the nanoparticle.

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9. (Original) The gel matrix of claim 8, wherein the COINS further comprise an organic

layer overlying the metal layer, which organic layer comprises the probe.

10. (Original) The gel matrix of claim 1, wherein the probe is selected from antibodies,

antigens, polynucleotides, oligonucleotides, receptors and ligands.

11. (Original) The gel matrix of claim 10, wherein the probe comprises a polynucleotide.

12. (Previously presented) The gel matrix of claim 1, wherein any of the nanoparticles may

further comprise a fluorescent label that contributes to the optical signature.

13-32. (Canceled)

33. (Currently amended) A system for detecting an analyte in a sample comprising a gel

matrix comprising a hydrated gel comprising pores having a size to sieve molecules of a desired

size range by electrophoresis or magnetophoresis and one or more SERS-enhancing nanoparticles

stationary within the gel, the SERS-enhancing nanoparticles within the gel having an attached probe

that binds specifically to an analyte; a sample containing at least one analyte; and

an optical detection system suitable for detecting SERS signals from the nanoparticles.

34. (Original) The system of claim 33, further comprising a computer comprising an

algorithm for analysis of the SERS signals obtained from the sample.

35-93. (Canceled)

94. (Previously Presented) The gel matrix of claim 1, wherein the SERS-enhancing

nanoparticles within the gel have an attached probe that binds specifically to an analyte.

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